

REPUBLIC OF THE UNION OF MYANMAR
Directorate of Water Resources and Improvement of River Systems

Myanmar Ayeyarwady Integrated River Basin Management Project
Executive Summary
Final Environmental and Social Management Framework

October 2014

ACRONYMS

ACAS	Agriculture and Climate Advisory Service
ADPC	Asian Disaster Preparedness Center
AWS	Automated Weather Station
CMU	Component Management Unit
DMH	Department of Meteorology and Hydrology, MoT
DWIR	Department of Water Resources and Improvement of River Systems, MoT
EA	Environmental Assessment
EMPF	Environmental Management Plan Framework
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
EWS	Early Warning System
FM	Financial Managements
GoM	Government of the Republic of the Union of Myanmar
HIC	Hydro-Informatics Center
ICT	Information and Communications Technology
IDA	International Development Association
IPP	Indigenous Peoples Plans
IPPF	Indigenous Peoples Planning Framework
M&E	Monitoring and Evaluation
MEB	Myanma Economic Bank
MoF	Ministry of Finance
MoT	Ministry of Transport
NGO	Non-Governmental Organization
NWP	Numerical Weather Prediction
NMS	National Hydro-Meteorological Service
NWRC	National Water Resources Committee
PCR	Physical Cultural Resources
PMU	Project Management Unit
PSC	Project Steering Committee
PWS	Public Weather Service
RAP	Resettlement Action Plan
RBO	River Basin Organization
RPF	Resettlement Policy Framework
SA	Social Assessment
SESA	Strategic Environmental and Social Assessment
SOPs	Standard Operating Procedures
WBG	World Bank Group
WMO	World Meteorological Organization
WRFM	Weather Research and Forecasting Model

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

1 EXECUTIVE SUMMARY

This Environmental and Social Management Framework (ESMF) was prepared by the Directorate of Water Resources and Improvement of River Systems (DWIR) within the Ministry of Transport (MoT) to cover the environmental assessment process and related social safeguard policies for investments financed under the Myanmar Ayeyarwady Integrated River Basin Management (AIRBM) Project. The ESMF provides a general option impact analysis with environmental and social criteria and an overall assessment on how to mitigate and monitor possible environmental and social effects affiliated with these investments.

The ESMF was developed to (a) identify environmental and social risks and potential social impacts and opportunities, (b) provide for the preparation of appropriate safeguard measures and plans for managing and addressing impacts, (c) assess risks associated with respective activities, address data gaps that have to be filled, and provide measures to mitigate risks and impacts and enhance benefits, and (d) provide stakeholder engagement through public consultation forums and promote communications and outreach. The ESMF also describes processes and procedures for a Strategic Environmental and Social Assessment (SESA) which will be carried out during project implementation under Component 1 as an input to the Ayeyarwady River Basin Master Plan and Decision Support System. The SESA will seek among other things to highlight issues of concern surrounding potential future hydropower development and indicate areas of particular environmental sensitivity and social fragility. This will be done with the understanding that any future hydropower development or other future investments would need project specific screening and assessment as contained in the ESMF.

The ESMF was prepared to ensure that the environmental and social assessment and other safeguard requirements will be carried out in compliance with the national guidelines for conducting Environmental Impact Assessments (EIA), other environmental and social regulations and laws of Myanmar, and in accordance with the World Bank Environmental Assessment (EA) and social policies and procedures on involuntary resettlement and indigenous peoples as specified in the World Bank Group safeguard policies. The ESMF is integrated in the Project Implementation Manual (PIM) and is applicable to all AIRBM project activities as well as to linked investments financed for Ayeyarwady River Basin, regardless of their funding source or implementing agency.

Project Description

The proposed Myanmar AIRBM Project funded by the World Bank through a loan of US\$ 100 million and implemented by DWIR is designed as a multi-phased approach (Series of Projects) to strengthen integrated, climate resilient management and development of the Ayeyarwady River Basin and national water resources. The first phase aims at developing the institutions and tools needed to implement integrated river basin management, and deliver related livelihood benefits from enhanced navigation and hydromet warning and advisory services. Specific project locations for interventions linked to navigation enhancements and hydromet warning on the Ayeyarwady from Mandalay to Yangon will be selected and

identified during project implementation once the relevant modelling and feasibility studies are developed.

The proposed first phase will also lay the groundwork needed to undertake large-scale infrastructure investments in possible second or third phases (yet to be determined) and financed primarily under the project preparation of future investments subcomponent. It will also provide the government with the capacity to do basin-wide scenario analyses, to properly identify and assess the complex trade-offs that inevitably arise from large, long-lived water infrastructure investments, and to follow economic, environmental and social 'good practices'. Therefore, the first phase will also support (pre-) feasibility, feasibility and other upstream technical studies (no detailed designs) for priority infrastructure investments that will be primarily identified in the course of a basin planning framework (master plan) for potential funding in subsequent phases. A Strategic Environmental and Social Assessment (SESA) will be undertaken in parallel with the preparation of, and to inform, the river basin master plan during project implementation in line with preliminary draft ToRs included in this ESMF (Annex 3).

Component 1: Water Resource Management Institutions, Decision Support Systems & Capacity Building

Subcomponent 1.1. Institutional Development: This sub-component will support (a) design and construction of a new NWRC Secretariat and HIC headquarters facility in Mandalay, immediate refurbishment of associated office space in Yangon and Nay Pyi Taw, and provision of office furnishings and equipment; (b) development of the NWRC institutions, mandates, business plans, staffing strategies and operational procedures, as well as institutional, legal and regulatory reviews and reforms relating to water resources management, and (c) capacity building, including possible twinning arrangements.

Subcomponent 1.2. Ayeyarwady Integrated River Basin Master Plan and Decision Support System: This sub-component will provide immediate guidance on investment options while also developing the tools and processes needed to ensure the government has ongoing capacity to plan and manage its national water resources. A phased approach will be taken to plan integrated development of the Ayeyarwady River, based on sufficient understanding of opportunities and risks and guided by agreed Basin Development Objectives. Activities will include (a) development of the Ayeyarwady Integrated River Basin Master Plan, the development of a DSS that will become the primary knowledge asset of the HIC, and stakeholder consultations to identify Basin Development Objectives, (b) implementation of groundwater and sediment surveys, and (c) implementation of a Basin-wide Strategic Environmental and Social Assessment (SESA).

Subcomponent 1.3. Preparation of Future Investments (PFI): This sub-component will support preparation activities for priority investments that may be financed under future phases of this Series of Projects. It will finance feasibility studies, procurement and safeguards related activities, workshops and study tours and other activities as agreed between the WBG and GoM. It will not finance detailed design work. This financing will create an incentive to develop projects within the NWRC framework – to identify, and prepare projects to international quality standards, within an integrated basin framework and in accordance with basin wide development objectives. To be eligible for PFI funding, a project must be

consistent with the Ayeyarwady Basin Master Plan (Sub-component 1.2a) and with the Bank's engagement objectives in Myanmar.

Subcomponent 1.4. Implementation Support: This sub-component will provide funds for (a) consultant and advisory services for the Project Management Unit (PMU) including for financial management, procurement, safeguards and monitoring and evaluation, (b) incremental operating costs, and (c) project-related communications and outreach as well as the creation of a Stakeholder Forum that will be an important mechanism for consultation during the implementation of this Project and sustained thereafter as a platform for stakeholder engagement with the NWRC.

Component 2: Hydromet Observation and Information Systems Modernization

Subcomponent 2.1. Institutional and Regulatory Strengthening, Capacity Building and Implementation Support of DMH: This sub-component will support (a) institutional strengthening of the DMH including the development of a robust legal and regulatory framework, (b) capacity building and training for DMH staff, and (c) technical assistance in DMH systems design, integration and operations as well as Component 2 management and monitoring.

Subcomponent 2.2. Modernization of Observation Infrastructure, Data Management Systems and Forecasting: This sub-component will support (a) technical upgrading of the hydro-meteorological observation network, (b) modernization operations centers, data management and communications/IT systems, engineering and calibration facilities, (c) improvements in numerical weather prediction systems and associated hydrological modelling frameworks, and (d) reconstruction and/or refurbishment of DMH facilities.

Subcomponent 2.3. Enhancement of the Service Delivery System of DMH: This sub-component will support the strengthening and delivery of hydromet information services in order to ensure project benefits are realized across the range of stakeholders. This will likely include (a) creation of a Service Delivery Platform for weather and hydrological services, (b) support for disaster risk management (DRM) operations including expansion of "end-to-end" early warning systems in small river basins with floods and flash floods, (c) development of an Agricultural and Climate Advisory Service (ACAS), and (d) the creation of a National Framework for Climate Services.

Component 3: Ayeyarwady River Navigation Enhancements

3.1 Navigation Improvements (USD 30.35 million): This sub-component will support navigation improvements to increase water levels during the low water season for both passenger and cargo vessels, primarily along the busiest stretches of the Ayeyarwady river. This sub-components activities will include: (a) 1-dimensional and 2-dimensional river modeling to identify the scope of works for river navigation enhancements, sedimentation modeling which is essential for effective operations and maintenance, preparation of detailed design documents, cost estimates and bidding documents, and supervision of construction work; (b) preparation of an Environmental and Social Impact Assessment (ESIA), including site-specific Environmental and Social Management Plans (ESMPs), and if needed site-specific Resettlement Plans and Indigenous Peoples Plans, for the proposed enhancement works; and (c)

construction of the enhancement works. The scope of works will initially focus on the Mandalay – Nyaung Oo section of the Ayeyarwady River and will be expanded to other critical stretches between Nyaung Oo and Yangon.

3.2 Navigation Aids (USD 3.4 million): This sub-component will support (a) the purchase and installation of navigation aids such as buoys, signage, modern GPS mapping, communications systems (requiring survey boats, echo-sounding equipment and radar) and the installation of lighting and signage systems to enable night time navigation on the Mandalay – Nyaung Oo section of the River; and (b) a strengthened river pilot system to enhance safety and facilitate efficient navigation along the Mandalay – Yangon section of the Ayeyarwady.

3.3 Water Quality Monitoring (USD 2 million). This component will support the design and piloting of a water quality monitoring system.

3.4 Institutional Strengthening and Implementation Support (USD 2.1 million): This component will support (a) Component 3 implementation costs, (b) a fleet optimization study to improve transport efficiency by ensuring that fleet development is well suited to the river, and (c) capacity building, training and communications and awareness raising activities related to the Project-sponsored river improvements and new information, regulations and procedures.

Component 4: Contingent Emergency Response (USD 0 million)

This ‘zero component’ (initially without any allocated funding) will allow for the rapid reallocation of funds from other components to provide emergency recovery and reconstruction support in the event of a natural disaster, emergency and/or catastrophic event. Funds potentially reallocated to Component 4 would be disbursed either against a positive list of critical goods and/or against the procurement of works, and consultant services required to support the immediate response and recovery needs of GoM. A Contingent Emergency Response Implementation Plan will be developed to guide financial management, procurement, safeguard and any other necessary implementation arrangements and procedures.

Brief Project Baseline Information

The Ayeyarwady River Basin

The Ayeyarwady River (also known as Irrawaddy; length 2170 km; drainage area 413,710 Km²) is the largest river in Myanmar and has been described as the heart of the nation. The basin accounts for over 60% of Myanmar’s landmass, accommodates 70% of its population, and transports 40% of its commerce. Groundwater resources in the basin are believed to be even greater than surface water resources. It is rich in natural resources particularly forests, land and water in addition to biodiversity.

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Large part of the water, energy and food security of Myanmar depends upon the Ayeyarwady river basin. Therefore the ecosystem of the Ayeyarwady River Basin plays a crucial role as the lifeline of Myanmar

populace. Achieving sustainable development of these resources is vital to the country and the sustainability of water, energy and food security in Myanmar.

There are an estimated 517,000 ha of mangrove forest in Myanmar, of which 46% are located in Ayeyarwady Delta (Ramsar, n.d.). In the Ayeyarwady Region, mangrove forest has been seriously degraded in recent years due to agricultural conversion and the high demand for firewood and charcoal from Yangon, with consequent decline of fish catches and increased vulnerability to natural disasters. It has been estimated that ~83% of mangroves in the Ayeyarwady Delta have been destroyed between 1924 and 1999 (NECC, 2012). The Ayeyarwady river also has extensive wetlands in the interior of the country, which are mostly seasonally inundated floodplains, most of which have been reclaimed for permanent agriculture.

The swamp forest, found in the Ayeyarwady Delta is of high ecological importance for many bird species, which have suffered dramatic population declines across their global distributions. The Ayeyarwady River also has extensive wetlands in the interior of the country, which provide excellent feeding areas for large number of waterfowl and fertile spawning grounds for a number of fishes, such as carp, catfish and perch. The River is also home to a number of charismatic and/or endangered species such as the Irrawaddy dolphin.

Socio-Economic Setting:

The total population of Myanmar is estimated to be around 50 million although the number varies between sources of data. About 75% of population is considered to live in rural areas. Average household size is 5, with little difference between rural (5.0) and urban (4.9) areas. There are more than 60,000 villages, Various studies indicate that poverty stands above 20% at the national level, while poverty incidence is higher in rural areas by about 5 percentage point. Myanmar is one of the most ethnically diverse countries in south East Asia. The Bamar is the largest ethnic group, comprising around two-thirds of the population, and various ethnic minorities accounting for about one third. The majority Bamar population mainly lives in the central and delta regions (divided into seven Regions) while the ethnic minorities live mainly, however not exclusively, in the seven States (Kayah, Kayin, Kachin, Chin, Mon, Rakhine, and Shan) along the borders. The official population estimates of the main ethnic minority groups are roughly: Shan (9%), Kayin/Karen (7%), Rakhine (4.5%), Chin (2%), Mon (2%), Kachin (1.4%), Kayah (1%). The eight “ethnic races,” including the majority Bamar are subdivided into 135 officially recognized ethnic groups and belong to five linguistic families (Tibeto-Burman, Mon-Khmer, Tai-Kadai, Hmong-Mien, and Malayo-Polynesian); there are no population figures for ethnic minority sub-groups.

While the majority of the population in the Ayeyarwady River Basin is Bamar, the area is also home to many ethnic minority groups. Data does not exist that clearly show the list of ethnic groups present in the river basin. The Strategic Environmental and Social Assessment (SESA) will collect more data on the distribution of ethnic minorities in river basin at an early stage of project implementation.

Legal and Institutional Framework

Legal Framework concerning environmental management

The Government of Myanmar (GoM) is currently in the process of carrying out various reforms that include political, economic, and environmental reforms consequently updating and developing its Environmental legal and institutional framework. However, numerous challenges remain. Myanmar Environmental policies and laws are mostly sectoral and are gradually transitioning from a nature conservation focus to environmental mainstreaming into the economic and social development of the country.

Sector specific laws - where developed - regulate only particular environmental aspects. Therefore, there are no laws that comprehensively regulate strategic aspects such as environmental impact assessment, waste management, involuntary resettlement, or particular measures for vulnerable groups such as ethnic minorities. Sectoral laws also produce overlapping of certain responsibilities (e.g. licensing for works on river ways fall under both Ministry of Transportation and Ministry of Environmental Conservation and Forestry). Myanmar is party to several international treaties, however the incorporation of those provisions into domestic law has been somewhat fragmented.

The legal and institutional gap also extends into administrative and procedural structures, and capacity and resources to enforce such provisions. There is also a need for better coordination between sectoral ministries and between union and local government. Some members of Myanmar Civil Society have argued that the lack of environmental protection legislation and enforcement capacity has left room for unabated ecological degradation.

Legal framework concerning ethnic minorities

According to Chapter 1, clause 22 of the 2008 Constitution of Myanmar, the Union Government of Myanmar is committed to assisting in developing and improving the education, health, language, literature, arts, and culture of Myanmar's "national races." It is stated, that the "Union shall assist:

- a) To develop language, literature, fine arts and culture of the National races;
- b) To promote solidarity, mutual amity and respect and mutual assistance among the National races;
- c) To promote socio-economic development including education, health, economy, transport and communication, [and] so forth, of less-developed National races."

The constitution provides equal rights to the various ethnic groups included in the national races and a number of laws and regulations aim to preserve their cultures and traditions. This includes

the establishment of the University for the Development of the National Races of the Union which was promulgated in 1991 to, among other things, preserve and understand the culture, customs and traditions of the national races of the Union, and strengthen the Union spirit in the national races of the Union while residing in a friendly atmosphere and pursuing education at the University.

Legal framework concerning land acquisition

The legal framework in Myanmar is evolving. Myanmar does not have a unitary land law but has several laws for different categories of land. All land belongs to the state under the current legal system, and land users receive certificates from the Settlement Land Records Department. The Land Acquisition Act (1894) provides certificates. When private land is acquired or private assets such as trees and standing crops are lost under public or private projects, compensation is paid at market value. The Act also provides that affected people with complaints can bring the case to court. A new Farmland Law was recently adopted which introduced various reforms such as the recognition that farmland owners are able to sell, mortgage, lease, exchange, inherit or donate all or part of their farmland. There is also the requirement that compensation be paid for both land and buildings attached to it. As for non-agricultural land in rural areas, the Village and Town Act are under revision. The Vacant, Fallow and Virgin Land Management Law, which was recently adopted, define legal provisions on unused land.

Present Institutional Framework relevant to project activities

The Ministry of Environmental Conservation and Forestry (MOECAF) is the focal agency for overall environmental management in Myanmar. MOECAF's predecessor, the Ministry of Forestry (MOF) created in 1992, had been gradually taking over the coordination of environmental protection in Myanmar. In 2005, the MOF absorbed the 1990 National Commission for Environmental Affairs (NCEA), the main environmental authority at the time, composed by nineteen heads of departments from various sectoral ministries. In 2012, NCEA became one of the six departments under the MOECAF, the Environmental Conservation Department, which main objectives include: (i) implementing National Environmental Policy, strategy, framework, planning and action plan for the integration of environmental consideration into in the national sustainable development process; (ii) managing natural resources conservation and sustainable utilization, the pollution control on water, air and land for the sustainable environment; and (iii) cooperating with other government organizations, civil society, private sectors and international organizations concerned with environmental management.

The GoM established in 2004 the National Environmental Conservation Committee (NECC) aimed at consolidating the environmental conservation activities at local and national levels. NECC, chaired by the Ministry of Forestry, was reformed in April 2011 to include 21 members from 19 ministries. NECC is divided in four sub-committees, one of which aims at addressing the environmental problems in rivers and wetland areas.

MOECAAF priority actions include creating: (i) guidelines for environmental quality standards and pollution control; (ii) EIA procedures and guidelines as well as review and monitoring institutions; (iii) Environmental related Water Management Master Plans; (iv) Climate Change strategy and Emergency Risk Management Plan; (v) Green Economy Strategy for low carbon development; and (vi) Environmental Monitoring programs and inspections rules and regulations. The principal constraints identified by MOECAAF include: (i) lack of information; (ii) lack of technical expertise, (iii) lack of financial resources and sustainability, (iv) lack of coordination both within and between government institutions and well as national and local entities, (v) challenges around public participation, and (vi) time limits.

The other important sectoral agencies in the areas of environmental and water resources management are the Ministry of Transport (MoT), Ministry of Health (MOH), the Ministry of Agriculture and Irrigation (MOAI), the Ministry of Social Welfare, Relief and Resettlement (MSWRW), and the Ministry of Livestock, Fisheries and Rural Development (MOLFARD). The Directorate of Water Resources and Improvement of River System (DWIR), under MoT, is responsible for the health, sustainability and disaster reduction of all river systems in Myanmar as well as their economic productivity. The National Water Resources Committee, formed by the Presidential Decree in July 2013 and chaired by the Vice President of Myanmar, is an apex body aiming at overseeing the efforts of the 34 government agencies with current mandates affecting water resources management. The AIRBM project implementing unit will report both to the DWIR and the NWRC Secretariat.

In recent years, the MOH has been incorporating environmental health activities such as surveying for toxic and hazardous materials, monitoring occupational health linked to environmental pollution, and improving clean water supply and sanitation. The Relief and Resettlement Department and the Myanmar Disaster Preparedness Agency, under MSWRR, are tasked with the implementation of the Myanmar Action Plan on Disaster Risk Reduction, which includes water monitoring, early warning systems and flood control activities, among others. The Water Resource Utilization Department and Irrigation Department under MOAI work in improving water supply for irrigation purposes. The Department of Fisheries under MOLFARD is responsible for not only fishery resource management but also fish diversity conservation in both fresh water and marine environments. Table 1 highlights various agencies with different tasks related to water resources management.

Table 1. Agencies with water resources management responsibilities

Agency	Water Resources Management Responsibilities
Irrigation Department	Responsible for: (i) agriculture water supply for irrigation Development, (ii) to some extent, urban water supply, (iii) preventing of saline water intrusion, and (iv) water level recording and discharge measurement, especially for irrigation dams and canals
Meteorology and Hydrology Department	Responsible for (i) weather/water monitoring stations, sediment discharge stations on main rivers and big tributaries, (ii) water quality stations on Ayeyarwady delta for measuring discharge and sediment flows and monitoring salt intrusion

Forest Department	Responsible for rehabilitation and conservation of forests and watersheds and maintaining the stability of Environment in order to develop the social and economic conditions of the nation, especially in rural areas
Water Resource Utilization Department (WRUD) under MOAI	Responsible for pumping up water from rivers for irrigation purposes.
Directorate of Water Resources and Improvement of River Systems (DWIR)	Responsible for improving water ways, canals and river systems for a variety of issues including navigation, sedimentation and water quality issues, river system health, sustainability, disaster risk reduction and economic productivity
Municipal bodies like Yangon, Nay Pyi Taw, Mandalay City Development Committees (YCDC, MCDC) and Township Development Committees (TDC)	Gradually taking over the responsibility for urban water supply.
Department of Health	Partially responsible for some aspects related to rural water supply and sanitation linked to health facilities' operation.

World Bank Group Safeguard Policies

The proposed project triggers the following World Bank policies: *Environmental Assessment* (OP 4.01); *Natural Habitats* (OP 4.04); *Pest Management* (OP 4.09); *Forests* (OP 4.36), *Physical Cultural Resources* (OP 4.11), *Safety of Dams* (OP 4.37), *Involuntary Resettlement* (OP 4.12) and *Indigenous Peoples* (OP 4.10).¹ The project has been classified as environmental category “A” in accordance to the World Bank policy OP/BP 4.01 on *Environmental Assessment* given the possible high environmental and social risk impacts affiliated with the project interventions and the overall complex impact of the project focused on an integrated river basin planning approach. However, specific infrastructure investments (once identified in terms of location, characterized for their technical complexity and assessed in view of their impact) may qualify for category “B” and/or category “A” impact subprojects. Other activities supported by the project, such as the undertaking of prefeasibility, feasibility and other studies also need to review and assess potential environmental and social impacts of the activities and alternatives considered on a case-by-case basis.

Currently, there is no environmental and social impact assessment framework in Myanmar. The GoM drafted in 2001 a set of Environmental Impact Assessment rules, but they have yet to be enacted. The 2012 Conservation Law provides a general mandate to MOECAAF to produce an ESIA system but specific ESIA procedures and guidelines are yet to be endorsed. ESIA are

¹The Ayeyarwady rises in the Himalayas, bisects Myanmar from north to south and empties through a nine-armed delta into the Bay of Bengal. A portion of the catchment areas that feed two of the tributaries of the river (the Maykha and the Malikha) are located in China. The Malikha tributary in turn is fed by a sub-tributary originating within India. This meets the definition of an International Waterway as stipulated in paragraph 1 of the World Bank’s Operational Policy 7.50 on International Waterways, although the combined flow outside of Myanmar is estimated to be less than 1%. The planned investment activities involve minor additions or alterations to an ongoing scheme of river training and protection, feasibility studies for potential future investments in the river basin and water resource/groundwater surveys. Although modeling and the environmental assessment have yet to be done, it is not anticipated that the construction or rehabilitation works proposed under the project will adversely change the quality or quantity of water flowing in the river and the project will not be appreciably affected by other riparians’ possible water use. On this basis, the Bank has determined that the proposed project does not require riparian notification in accordance paragraphs 7(a) and 7(b) of OP 7.50.

conducted, however, on an ad hoc basis for projects funded by international organizations and some foreign corporations. The ESIA challenges also expand into the institutional framework with a MOECAF with little technical and financial resources to review and monitor environmental and social performance of investment projects on the ground. Table 2 summarizes the main aspects of the draft EIA rules vis a vis the OP 4.01 and related policy procedures. Myanmar does not have a unitary law or legislation with regard to land acquisition and compensation or on ethnic minorities.

Table 2. National Draft EIA rules versus OP/BP 4.01 EIA requirements

Issue	Draft EIA Rules	OP 4.01
Triggers	Projects with significant environmental impact	All projects financed by the World Bank. EA process depth will depend on the risk and impacts associated with the Project.
Responsibilities	Project proponent leads the EA process	Borrower leads the EA process
Public participation	MOECAF shall arrange as it deems necessary for Public Participation. In the process of approving the EIA report, MOECAF shall take into account suggestions from project affected people and civil society. However, the rules do not specify the process of receiving feedback or incorporating it into the proposed project.	For all Category A and B projects, during the EA process, the borrower consults project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental and social aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them. If ethnic minorities are present in the project area or the project may include involuntary resettlement additional consultations are held as per OP 4.10 and OP 4.12.

Disclosure	<p>The Project proponent shall disclose all relevant project information to MOECAF.</p> <p>No further requirement of disclosure to project affected people or civil society is made in the EIA rules.</p>	<p>The borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.</p> <p>For a Category A project, the borrower provides for the initial consultation a summary of the proposed project's objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA's conclusions. In addition, for a Category A project, the borrower makes the draft EA report available at a public place accessible to project-affected groups and local NGOs</p> <p>Any separate Category B report is made available to project-affected groups and local NGOs. Public availability in the borrowing country and official receipt by the Bank of Category A reports, and of any Category B report, are prerequisites to Bank appraisal of these projects.</p> <p>Once the borrower officially transmits the Category A EA report to the Bank, the Bank distributes the summary (in English) to the executive directors (EDs) and makes the report available through its InfoShop. Once the borrower officially transmits any separate Category B EA report to the Bank, the Bank makes it available through its InfoShop.</p> <p>If the borrower objects to the Bank's releasing an EA report through the World Bank InfoShop, Bank staff (a) do not continue processing an IDA project, or (b) for an IBRD project, submit the issue of further processing to the EDs.</p>
Screening	<p>Lists projects that require environmental examination including land use change, exploitation of resources for introduction of new species.</p> <p>MOECAF shall determine the format and timing of the reports. MOECAF will determine the type of environmental assessment required based on the environmental examination</p>	<p>The Bank screens all projects and classifies them into one of four categories (Category A, B, C, and FI), depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts</p>

EA Content	MOECAAF determines the content of the EA report, which primarily includes assessment of direct impacts linked to project and description of mitigation measures (environment mitigation plan).	The EA needs to include assessment of project alternatives; cumulative impacts; specific mitigation measures and monitoring activities.
Monitoring	<p>MOECAAF shall monitor project performance in accordance to the Environmental Management Plan (EMP).</p> <p>The Project proponent shall comply with the EMP and the terms included in the license throughout the lifetime of a project.</p> <p>If found in non-compliance, MOECAAF shall impose penalties or suspend project construction or operation.</p>	During project implementation, the borrower reports on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of any EMP, as set out in the project documents; (b) the status of mitigatory measures; and (c) the findings of monitoring programs. The Bank bases supervision of the project's environmental aspects on the findings and recommendations of the EA, including measures set out in the legal agreements, any EMP, and other project documents

In addition, the AIRBM project investments will follow the WBG Environmental, Health, and Safety (EHS) Guidelines, which are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each investment on the basis of the results of an environmental assessment in which site-specific variables, such as local country context, assimilative capacity of the environment, and other sub-project factors, are taken into account. The assessment of the range of pollution prevention and control techniques available to an investment may include, but are not limited to, varying levels of environmental degradation and environmental assimilative capacity, as well as varying levels of financial and technical feasibility. Gap analysis between national legislation and the Bank’s social safeguards policies OP 4.10 and 4.12 is provided in the RPF (Annex 6) and IPPF (Annex 7) of the ESMF.

POTENTIAL PROJECT ENVIRONMENTAL AND SOCIAL IMPACTS

Impact analysis of the Project at this point can be considered using only the limited available general information on the environmental and social situation in the project’s area of influence and the typical known impacts of suggested project activities. Site specific impacts (during pre-/construction stages as well as operation stage) will be analyzed during the detailed design stage and included in the relevant ESIA, EMPs and other safeguard instruments as needed. Typical Project Environmental and Social impacts for suggested Project activities are summarized below.

Small Construction Works: The Project will finance small construction works related to: (i) the construction or refurbishment of the NWRC Secretariat and Hydro-Informatics Center headquarters, (ii) the Modernization of Observation Infrastructure, Data Management Systems and Forecasting, and (iii) establishing of Navigation Aids from Mandalay to Yangon with night navigation focused on the Mandalay – Nyaung Oo section. The environmental impacts of these

small construction works are likely to be localized and prevented or reduced to acceptable levels by applying international construction practices and planning. Such potential impacts are related to: (i) air pollution/dust, noise, vibration, and access restriction, (ii) improper disposal of construction related waste; (iii) temporary pollution of soil and surface waters due to accidental spillage of fuel from construction activities; (v) safety hazards including worker safety; (vi) damage to natural habitats, aquatic fauna, or existing vegetation, and (vii) impacts to physical cultural resources. These impacts should be properly managed during the construction phase by the contractor and closely supervised by the Project Director's Unit (PMU), the Project Implementation Team and the supervision engineer. ESMPs will be carried out in order to assess possible environmental and social impacts. To the extent to which these small construction works could have environmental and social risk/impacts more significant as those anticipated (e.g. they are located in an area where indigenous peoples or endangered biodiversity is present) a full ESIA or related IPP, Resettlement Plans will be required.

Navigation Enhancements: The Project is expected to build navigation enhancements from Mandalay to Yangon. Planned river channel enhancements to increase the least available depth of the river during the low flow season, are likely to involve the construction of small groins within the riverbed with limited dredging. It is possible that dredging process and river training works can influence the water regime in rivers and swamp areas in the wider Ayeyarwady river catchment area. This is not an instantaneous impact but a slow process that will develop over the years after completion of works. As a result of reduced water flow in the lateral branches and minor flooding, changes in groundwater levels can be expected. This can potentially affect the functioning of wetlands, which are important refuges, hatching grounds and habitats of plants, birds, fish, amphibians and other animals. Dredging and the disposal of dredged materials can also potentially result in turbidity, siltation and sedimentation, reduced primary productivity, substrate disturbance and scouring, all of which can have impacts on downstream users of the river. Therefore, ESIA's prepared in parallel with the detail design will analyze further possible impacts and incorporate where relevant the results of technical studies such as the hydraulic modelling, including ecological flows, with the aim of selecting feasible alternatives with least environmental impact.

Improved navigation transport could increase the pressure over resources and lead to land use changes just as an improved road does. Opening or improving shipping channels will provide new and enhanced access within the river basin. It may lead to changes in existing patterns of transport and commerce which may benefit some communities, local markets, and river transporters, but bypass others. It could change the types of vessels and the mix of local and longer distance vessels plying the river. This aspect, if well understood in the ESIA's and SESA, will help facilitate economic and social development in the project's area of influence. The full ESIA's for the navigation investments will consider land use change modelling and provide mitigation measures.

Project Environmental and Social Assessment efforts (e.g. EISA's and or SESA) will map the development initiatives in the Project area of influence in order to enhance development results and avoid duplications (e.g. as part of the Action Plan on Disaster Risk Reduction, the Disaster Preparedness Agency is leading enhanced flood monitoring and forecasting initiatives in

townships and flood preparedness plans in the Ayeyarwady basin) as well as to assess any cumulative impacts at the river basin.

Ayeyarwady River Basin Master Plan and technical studies: The AIRBM project will support the following technical assistance to inform river basin management: (i) the preparation of a River Basin Master Plan and associated investments, and (ii) technical studies such as the basin groundwater survey, fleet optimization study, and Ayeyarwady river navigation strategy. It is envisioned that the Master Plan will suggest priority investment to manage the river basin and the AIRBM Project, under the Preparation of Future Investments sub-component, will finance advisory support for planning or feasibility studies linked to some of those suggested investment. These sub-projects are likely to have environmental and social safeguard impacts, although it is not possible to ascertain at this point their likely environmental and social impacts.

PROCEDURES TO ADDRESS ENVIRONMENTAL AND SOCIAL ISSUES

The proposed approach for addressing environmental and social issues in the Project will include the following safeguard instruments:

- This Environmental and Social Management Framework (ESMF) prepared prior to appraisal and approval of the AIRBM Project, to inform the overall environmental and social performance of the Project;
- Specific Environmental and Social Impact Assessments (ESIAs) and/or Environmental and Social Management Plans (ESMPs), and other safeguard instruments as required (e.g. involuntary resettlement plans, indigenous peoples plans) will be prepared for all investments/subprojects that are identified or designed during project implementation as well as those prepared under the Preparation of Future Investments (PFI) subcomponent, following the guidance established in this ESMF;
- A Strategic Environmental and Social Assessment (SESA) will be carried out during implementation to inform the Ayeyarwady River Basin Master Plan and other technical studies.

ESMF

The ESMF will be applied to all project activities including the infrastructure investments that are identified during project implementation (see Table 3 below), TAs and those financed by the PFI subcomponent. The PFI will provide finance to support the preparation of priority projects identified in the Master Plan, including feasibility studies, scoping and prioritization of project concepts, surveys and tests, strategic options studies, policy work, and other studies for future water resources infrastructure investments planned by the Borrower in the subsequent project phases (i.e., in irrigation, hydropower, navigation, delta management, municipal water supply or wastewater management systems). The Terms of References (TORs) for these studies will include screening of environmental and social safeguard risks, impacts and issues in line with relevant World Bank safeguards policies.

The ESMF includes:

- Screening and scoping criteria for individual sub-projects that are identified during project implementation or to be included in the PFIs activities.
- Guidance on project Categorization (A or B) and the definition of the required safeguard work
- A Resettlement Policy Framework for land acquisition and resettlement
- An Indigenous Peoples Planning Framework concerning ethnic minorities
- Guidance on:
 - Terms of Reference for ESIA and ESMP for Category A projects (See Annex 3)
 - Management of environmental impacts for small construction projects (See Annex 2)
 - Terms of Reference for SESA (See Annex 5)

ESIA/ESMPs

An ESIA and/or ESMP will be prepared for the civil works related to (i) infrastructure navigation works on selected river sections, for which feasibility studies and designs need to be prepared or revised; (ii) construction or rehabilitation of buildings/offices linked to management and operation of water quality and weather forecasting and DMH operation; (iii) installation of river water monitoring stations and other relevant weather and hydrologic observing network stations and early warning systems; and (iv) installation of navigation aids along the selected river sections. If needed, social safeguard instruments will also be prepared following the guidance provided in this ESMF and per World Bank policies on indigenous peoples (OP 4.10) and involuntary resettlement (OP 4.12).

SESA

The Ayeyarwady is home to an extraordinary diversity of cultural communities as well as ecosystems, flora and fauna. To understand the environmental and social dynamics of potential development options and projects in the Ayeyarwady Basin, a SESA will be carried out. This will include a basin wide survey of significant ecosystems and habitats as well as the main river use and related livelihoods. The SESA will be developed in parallel with the Master Plan (1.2.a) and its three phases to provide environmental and social inputs to the Master Plan, for example by identifying areas of the basin that are particularly fragile from an environmental or social perspective. In addition, the information and analysis generated in the SESA process will be captured in the DSS to ensure its integration in future planning and monitoring activities. The SESA will be participatory - designed to give voice to affected peoples - and developed in close tandem with the Stakeholder Forum consultation and other participatory mechanisms. The SESA will be carried out as part of technical assistance activities and is relevant to (i) preparation of the Ayeyarwady Integrated River Basin Master Plan and its Strategic Assessment; (ii) technical background studies such as the Ayeyarwady basin groundwater survey; fleet optimization study; and Ayeyarwady river navigation strategy.

Each of the AIRBM project investments, depending on its typology, will include an assessment of the potential social and environmental impacts and a specific Environmental Assessment (EA) tool consistent with Myanmar laws and standards (as applicable) and World Bank Group safeguard policies.

The ESMF will be applied to all infrastructure projects that are identified during project implementation and those financed by the Preparation of Future Investments (PFI) sub-component. The activities to be supported by the PFI sub-component will be required to have ESIA's and specific safeguard instruments, where needed, based upon the ESMF. The Bank will review and clear all safeguards instruments during implementation including ToRs. The final SESA ToR will also be reviewed and cleared by the Bank.

Table 3 summarizes the safeguard approach for the project:

Table 3. AIRBM Project proposed investments – environmental and social safeguard process

EA Instrument and category	Content according to the OP/BP 4.01 and relevant safeguard policies	AIRBMP Component	Comment
ESIA – Environmental and social impact assessment (category “A”)	<ul style="list-style-type: none"> • Executive summary • Policy, legal, and administrative framework • Project description. Concisely describes the proposed project and its geographic, ecological, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities). Indicates the need for any resettlement plan or indigenous peoples plan. Normally includes a map showing the project site and the project’s area of influence. • Baseline data. Assesses the dimensions of the study area and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences. Also takes into account current and proposed development activities within the project area but not directly connected to the project. Data should be relevant to decisions about project location, design, operation, or mitigation measures. The section indicates the accuracy, reliability, and sources of the data. • Environmental impacts including cumulative impacts. Predicts and assesses the project’s likely positive and negative impacts, in quantitative terms to the extent possible. Identifies mitigation measures and any residual negative impacts that cannot be mitigated. Explores opportunities for environmental enhancement. Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention. • Assessment of social impacts and risks, including potential land acquisition or other involuntary resettlement impacts, screening for the presence of 	Component 3.2. Navigation Improvements works from Mandalay to Yangon	Some preliminary assessments have already been carried out.

EA Instrument and category	Content according to the OP/BP 4.01 and relevant safeguard policies	AIRBMP Component	Comment
	<p>ethnic minorities and if presence is confirmed assessment of adverse impacts, free, prior and informed consultations and identification of measures to ensure culturally appropriate benefits and avoidance or mitigation of adverse impacts.</p> <ul style="list-style-type: none"> • Analysis of alternatives. Systematically compares feasible alternatives to the proposed project site, technology, design, and operation—including the “without project” situation—in terms of their potential environmental and social impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. For each of the alternatives, quantifies the environmental and social impacts to the extent possible, and attaches economic values where feasible. States the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement. • Environmental and social management plan (ESMP), including resettlement plan and indigenous peoples plan if needed. • Appendixes <ul style="list-style-type: none"> ○ List of EA report preparers—individuals and organizations. ○ References—written materials both published and unpublished, used in study preparation. ○ Record of interagency and consultation meetings, including consultations for obtaining the informed views of the affected people and local nongovernmental organizations (NGOs). The record specifies any means other than consultations (e.g., surveys) that were used to obtain the views of affected groups and local NGOs. ○ Tables presenting the relevant data referred to or summarized in the main text. ○ List of associated reports (e.g., resettlement plan or indigenous peoples plan). See ToRs for category A ESIA in Annex 5 		
ESMP - Environmental and Social Management Plan including ECoPs (category “B”)	<ul style="list-style-type: none"> • Environmental and Social Impacts: identifies and summarizes all anticipated significant adverse environmental and social impacts (including those involving indigenous peoples or involuntary resettlement). Describes--with technical details--each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate. Estimates any potential environmental and social impacts of these measures; and provides linkage with any other mitigation plans (e.g., for involuntary resettlement, indigenous peoples, or cultural property) required for the project. 	<p>Component 1.1 Construction or refurbishment of a National Water Resources Committee (NWRC) Secretariat and Hydro-Informatics Center headquarters facility;</p> <p>Component 2.2</p>	See Annex 2 for sample ECoPs for small construction works.

EA Instrument and category	Content according to the OP/BP 4.01 and relevant safeguard policies	AIRBMP Component	Comment
	<ul style="list-style-type: none"> • Monitoring: provides(a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation. • Capacity Development and Training: provides a specific description of institutional arrangements - which is responsible for carrying out the mitigatory and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). To strengthen environmental and social safeguard management capability in the agencies responsible for implementation, most EMPs cover one or more of the following additional topics: (a) technical assistance programs, (b) procurement of equipment and supplies, and (c) organizational changes. • Implementation Schedule and Cost Estimates: For all three aspects (i.e. mitigation, monitoring, and capacity development), the EMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the EMP. These figures are also integrated into the total project cost tables. • Integration of EMP with Project: The Bank expects the plan to be specific in its description of the individual mitigation and monitoring measures and its assignment of institutional responsibilities, and it must be integrated into the project's overall planning, design, budget, and implementation. Such integration is achieved by establishing the EMP within the project so that the plan will receive funding and supervision along with the other components. 	<p>the Modernization of Observation Infrastructure, Data Management Systems and Forecasting; reconstruction and refurbishment of DMH offices and facilities; technical modernization of the observation network;</p> <p>Component 2.3 - expansion of "end-to-end" early warning systems in several small river basins prone to floods and flash floods</p> <p>Component 3.3. establishing of Navigation Aids from Mandalay to Yangon focused on the Mandalay – Nyaung Oo section</p>	
SESA – Strategic Environmental and Social Assessment (Category “A”)	<ul style="list-style-type: none"> • OP 4.01 defines a SESA as an instrument that describes analytical and participatory approaches that aim to integrate environmental and social considerations into policies, plans and programs and evaluate their inter linkages with economic considerations • The Ayeyarwady is home to an extraordinary diversity of cultural communities as well as ecosystems, flora and fauna. To understand the environmental and social dynamics of potential development options in the Ayeyarwady Basin, a SESA will be carried out. A SESA is a tool for including environmental considerations into policies, plans, and programs at the 	<p>Component 1.2. Ayeyarwady Integrated River Basin Master Plan</p>	ESMF Annex 5 includes ToR and a process for carrying out the SESA

EA Instrument and category	Content according to the OP/BP 4.01 and relevant safeguard policies	AIRBMP Component	Comment
	<p>earliest stages of decision-making. SESA extends the application of ESIA's from projects to policies, programs, and plans. Ideally, SESA's are participatory, designed to give voice to those affected. This SESA will be undertaken early in project implementation to inform the preparation of the Master Plan (1.2.a), for example by highlighting areas of the basin that is particularly fragile from an environmental or social perspective. In addition, the information generated in the SESA process will be captured in the DSS to ensure its integration in future planning and monitoring activities. See preliminary draft ToRs for SESA in Annex 3.</p>		
<p>Environmental and Social Management Framework (“A” or “B” investments)</p>	<ul style="list-style-type: none"> Recognizing that there are a variety of study types with varying degrees of environmental implications it is important that the prefeasibility, feasibility studies and other studies demonstrate an appropriate consideration for promoting environmental objectives, as well as minimizing related risks of future plans, policies and programs. To address environmental issues associated with the desired outcome of the prefeasibility and/or feasibility study, detailed screening and scoping procedures and criteria will be applied to each proposed project leading to detailed ToRs for ESIA's that will be included in project preparation.. Assessment of social impacts and risks, including triggering of OP 4.10 and/or OP 4.12, for PFI subcomponent activities. Required instruments (e.g. resettlement plan and indigenous peoples plan) will be prepared based on policy required procedures such as social assessment and free, prior and informed consultations. 	<p>Component 1.3 -PFIs - Pre-feasibility studies, technical studies etc. Component 1.2 - Ayeyarwady Basin Groundwater Survey Component 2.2 – Design and pilot operation of surface water quality monitoring system Component 3.1 – Ayeyarwady River Navigation Strategy (Mandalay to Yangon)</p>	<p>The ESMF process for PFIs subcomponent is presented in Chapter 4. Resettlement Policy Framework in Annex 6 Indigenous Peoples Planning Framework in Annex 7</p>

General ESMF Implementation Flow Chart for Subprojects:

The following general procedures apply for all works sub-projects financed through the project, as well as all PFI (preparation of future investments) activities associated with physical works projects. The actual procedural flow may vary depending on the specific nature of the activity. The procedures for the Strategic Environmental and Social Assessment (SESA) are outlined in Annex 3.

Screening and Scoping

1: For every activity (physical sub-project or study) the PMU/CMU analyzes the following: Does the activity have potential for any type of social or environmental impact, or trigger any World Bank safeguard policy?

2: The PMU/CMU screens the activity in more detail for potential impacts, identify the triggered safeguard policies, and propose the general scope of work for safeguard instrument (ESIA, ESMP, RAP, IPP, etc.) Submit to the Bank a screening report for review (typically less than five pages with supporting maps). The

3: World Bank reviews and approves the screening report and provides comments on general scope of safeguard work.

Safeguard Instrument Preparation

4: The PMU/CMU prepares detailed scope of work and TOR for the preparation of the necessary safeguard instrument according to the general guidelines of the ESMF.

5: The World Bank reviews, provides comments, and approves the TOR for the safeguard instrument. Category A sub-projects require the clearance of the Bank's regional safeguard advisor.

6: The PMU/CMU is responsible for preparing the safeguard instrument. Typically, the PMU/CMU will contract a contractor or consultant to prepare the safeguard instrument. The PMU/CMU contracts the consultant/contractor to prepare the safeguard instrument(s) per World Bank procurement rules.

7: The consultant/contractor prepares the safeguard instrument(s). The PMU/CMU ensures quality and consistency with the ESMF and then submits to the World Bank. Typically public consultations are required in the preparation of the safeguard instrument.

8: The World Bank reviews, provides comments, and approves the safeguard instrument(s). Category A sub-projects require the clearance of the Bank's regional safeguard advisor.

Safeguard Instrument Implementation

9: The PMU/CMU is responsible for the implementation of the safeguard instrument. Typically, the PMU/CMU will contract a contractor or consultant to implement the safeguard instrument. The PMU/CMU should prepare a TOR for the contractor/consultant to implement the safeguard instrument and submits to the World Bank.

10: The World Bank reviews, provides comments, and approves the TOR for the contractor/consultant.

11: The PMU/CMU contracts the contractor/consultant to implement the safeguard instrument per World Bank procurement rules.

12: The PMU/CMU supervises the implementation of the contractor to ensure successful implementation of the safeguard instrument.

13: If necessary, an independent environmental or social monitor is contracted under a TOR acceptable to the Bank to supervise the implementation of the safeguard instrument.

14: The PMU/CMU includes reporting of safeguard implementation as a chapter of its normal project status reports.

15: *The World Bank supervises the implementation of the safeguard instrument, with specialized environmental and social specialists, to ensure compliance with World Bank safeguard policies. The Bank's Regional Safeguard advisor is kept informed of implementation.*

IMPLEMENTATION ARRANGEMENTS, RESPONSIBILITIES AND CAPACITY BUILDING

ESMF Implementation Arrangements

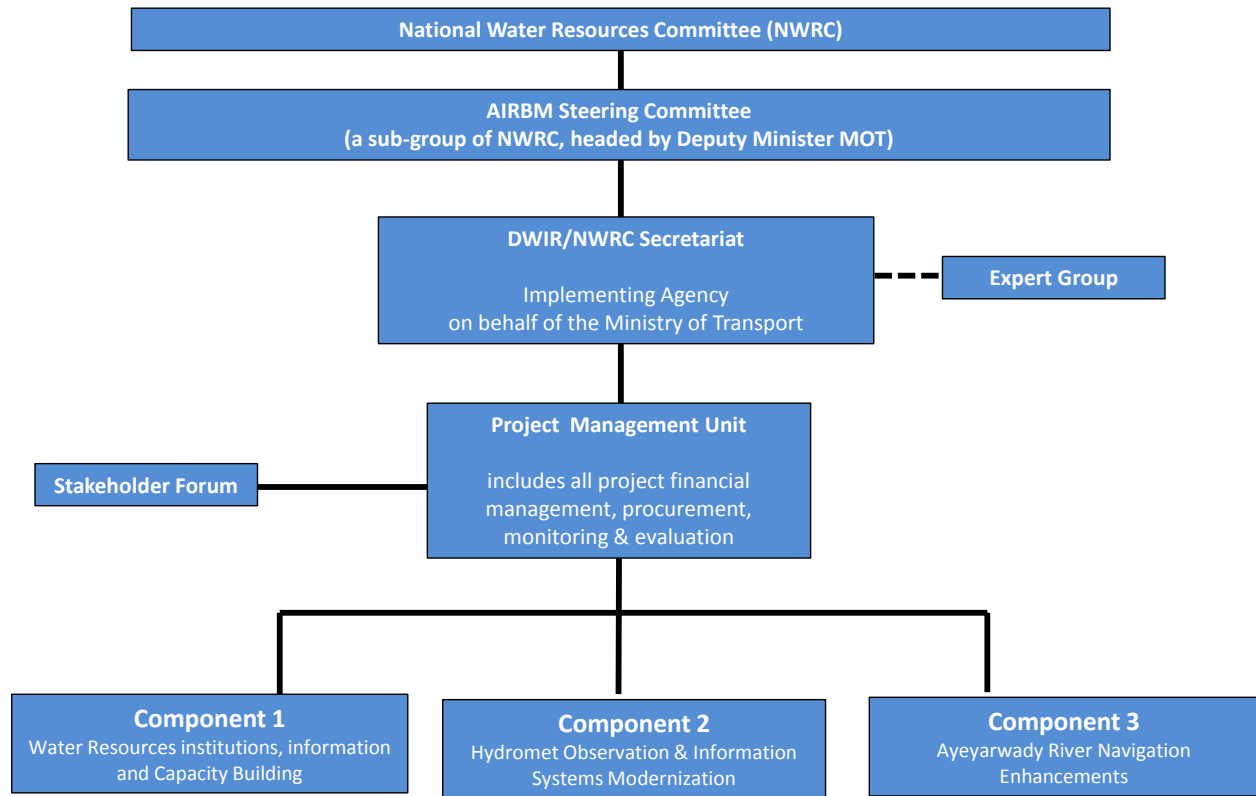
The implementation of the Environmental and Social Management Framework, Environmental and Social Management Plans, Resettlement Policy Framework and Indigenous Peoples Planning Framework will be the responsibility of the Borrower/DWIR and project designer (in the planning phase); the Executors of civil works and supervision works (in the construction phase), and the Manager(s) of Ayeyarwady River System (in the implementation phase).

Stakeholder involvement is an important element of the overall Environmental and Social Assessment process for the AIRBM Project, as stakeholder identification and analysis at an early stage of a project is critical in the assessment of interests, concerns, relationships, assumptions, their level of influence and the ways in which they affect project risks. Stakeholder identification and engagement commenced during project conceptualization and will continue throughout the ESIA and SESA activities during project implementation.

Effective implementation of the ESMF will require technical capacity in the human resources of implementing institutions as well as logistical facilitation. Implementers need to understand inherent social and environmental issues and values and be able to clearly identify them during project implementation.

Sufficient understanding of the mechanisms for implementing the ESMF will need to be provided to the various stakeholders implementing the AIRBM investments. This will be important to support each CMPU and appreciate their role in providing supervision, monitoring and evaluation including environmental and social reporting on the projects activities. The scheme including the project implementation arrangements is presented in Figure 1.

Figure 1. *The AIRBM Project Implementation Arrangements*



Capacity Building for ESMF Implementation

Safeguard capacity of the institutions involved in project implementation and river basin management will be enhanced through training and learning-by-doing activities. A preliminary safeguards institutional capacity and capacity building plan has been developed and is presented below. This plan will be refined and adjusted throughout project implementation as required.

Year 1: Training Activities:

Workshop 1: General Introduction to ESMF and World Bank Safeguard Policies: 2 days
Audience: All PMU/CMU and other relevant government staff, consultants, and civil society.

Workshop 2: Training on ESIA: 2 days
Audience: PMU/CMU Environmental and Social Staff and other relevant government staff, consultants, and civil society.

Workshop 3: Training on Environmental and Social Management Action Plan (ESMP): 1 day
Audience: PMU/CMU Environmental, Social, and Engineering Staff and other relevant government staff, consultants, contractors and civil society.

Workshop 4: Training on Resettlement Action Plans: 1 day

Audience: PMU/CMU Environmental and Social Staff and other relevant government staff, consultants, and civil society.

Workshop 5: Training on Indigenous Peoples Plans: 1 day

Audience: PMU/CMU Environmental and Social Staff and other relevant government staff, consultants, and civil society.

Annual Training: Years 2-5

Refresher Course: General Introduction to ESMF and World Bank Safeguard Policies: 2 days

Audience: All PMU/CMU and other relevant government staff, consultants, and civil society.

Specialized Training As Need to Consultants and Contractors

Training to Consultants Contracted to Prepare ESIA's: As Needed

Training to Contractors and Construction Supervision Consultant Responsible for EMP: As Needed

Training to Consultants Contracted to Prepare RAPs and/or IPPs: As Needed

In order to ensure that there is adequate capacity to implement and monitor the ESMF provisions, environmental and social experts will be appointed by PMU and each of the three CMPUs. This expertise and capacity building will contribute to the objectives of the Project, and will include, among other specific tasks such as:

- Preparing, together with the implementing entities, annual work programs and budgets linked to ESMPs;
- Monitoring project progress as it relates to compliance with the ESMF guidelines, resolving implementation bottlenecks, and ensuring that overall project implementation proceeds smoothly;
- Collecting and managing information relevant to the project and accounts (i.e., environmental and social monitoring and audit reports);
- Ensuring that the implementing bodies are supported adequately and that they adhere to the principles of the project, specific to compliance with the ESMF guidelines; and
- Responsibility for the organization and provision of training sessions, including a training plan and its modules, in environmental screening and environmental management and similarly training is also needed for involuntary resettlement and indigenous peoples safeguard policies for field supervision staff, and community representatives to familiarize them with the principles and procedures as set out in the ESMF (this could be applicable to PFI activities as well).

Project Public Consultation Process

Public consultations are an integral part of the Project. Two sets of consultations were carried out by DWIR during project implementation on May 16 and 19, and again on September 18 and 19, 2014 in Mandalay and Yangon, respectively. Participants included CSOs, local NGOs, International

NGOs, and the River Users' Association, researchers, private sector and the media. The main objectives of the consultations were to (a) provide background information on the proposed AIRBM, (b) obtain feedback on the scope of work of the draft Environmental and Social Management Framework (ESMF) Terms of Reference (TOR) during the May 2014 consultation and on the draft ESMF itself during the September consultation, (c) discuss ways to maximize benefits from the proposed Project, and (d) discuss ways to improve the Project consultation processes. The documents used for consultation included the Myanmar and English versions of Project Information Document (PID), Integrated Safeguard Data Sheet (ISDS), and the draft Environmental and Social Management Framework (ESMF) terms of reference (in May) and the draft ESMF (in September).

Invitations were issued and documents were circulated and posted on the Directorate of Water Resources and Improvement of River Systems (DWIR) website www.DWIR.coffeecup.com, in both English and Myanmar language two weeks before the meetings. All the meetings were led by the AIRBM Project Director, U Sein Tun. The sessions were conducted in both English and Myanmar language with some simultaneous translation provided. Overall, the consultations were well attended, informative and constructive. The participants highlighted important issues for attention, provided the team with valuable information, and confirmed the need and value of improving the country's capacity to better plan and manage the Ayeyarwady River. They emphasized the importance of the Ayeyarwady river basin for local communities and national development (see Annex 8 and 9 for summaries of the consultations).

Public consultations will continue and be expanded during project implementation as part of the environmental and social assessment processes, as described in this ESMF, and as part of general Stakeholder Engagement activities. A Stakeholder Forum will be established to support the PMU and ensure engagement of key stakeholders from the public sector, private sector, NGOs and CSOs throughout the life of the project. Input and feedback obtained from the Stakeholder Forum will be used to inform implementation of the AIRBM project. The Stakeholder Forum will serve as a key platform to support the engagement of communities in project consultations, including consultations on the Basin development objectives for the Master Plan.

ESTIMATED ESMF IMPLEMENTATION COSTS

The table on the following page summarizes the estimated costs for implementing the ESMF, along with a contingency. These costs were extracted from various line items in the overall project cost table (such as capacity building, PFI costs, and the SESA, and assembled below to provide a perspective on environmental and social management costs.

Estimated Costs for ESMF Implementation			
A. Training Costs	No.	Unit Cost (US\$)	Total Cost (US\$)
A.1 Year One Safeguard Capacity Building	5	\$10,000	\$50,000
A.2 Annual Safeguard Update Training	4	\$5,000	\$20,000
A.3 Specific Training for Consultants/Contractors	8	\$5,000	\$40,000
Subtotal			\$110,000
B. ESMF Implementation-Based On Investment/Planning Costs			
B.1 ESMF Project-Financed Works-2% of \$30 million investment			\$600,000
B.2 ESMF PFI Activities-15% of \$7 million of preparation studies			\$1,050,000
Subtotal			\$1,650,000
C. Specialized Safeguard Staff:			
	No.	Per year	5 Years
C.1 Environmental Specialists-PMU	1	\$ 15,000	\$75,000
C.2 Environmental Specialists: CMU	2	\$ 7,500	\$75,000
C.3 Social Specialists-PMU	1	\$ 15,000	\$75,000
C.4 Social Specialists: CMU	2	\$ 7,500	\$75,000
Subtotal			\$300,000
E. Ayeyarwady Strategic Environmental and Social Assessment (SESA)			\$1,000,000
Sub-Total			\$3,060,000
Contingencies		15%	\$459,000
Total			\$3,519,000